# Stanton International

## Oregon Manufacturing Extension Partnership

### Furniture Manufacturer goes Lean on Cutting, Sewing, and Assembly

**Client Profile:**
Stanton International, located in Tualatin, Oregon, manufactures residential and commercial upholstered furniture. The company was founded in 1993 and employs 295 people.

**Situation:**
Stanton International wanted to improve its overall market position (quality, cost, lead time) and reduce internal costs as well. The company carried approximately $2.5 million in raw material inventory and $500,000 in finished goods inventory. Additionally, lead times for non-stocked inventory could run into several weeks. The entire factory floor-space was being utilized, much of it for work-in-process (WIP) inventory. The company was operating in a very typical batch and queue manner. WIP was staged in substantial quantities after every point in the fabrication and assembly of the product. Departmental goals were to produce quickly, ship the WIP to the next department and then complete the next queue. Stanton International approached the Oregon Manufacturing Extension Partnership (OMEP), a NIST MEP network affiliate, in late 2004 after a referral from another company for assistance with implementing Lean Manufacturing.

**Solution:**
OMEP initiated a combination training and consulting program focusing on two primary value steams at Stanton: 1) fabric cutting and sewing; and 2) framing through packaging. The current state in cutting and sewing operations identified significant over-production driven by a cutting process that was seen as more efficient when many pieces where cut at one time, resulting in greatly over-producing for the sewing department. A more balanced production was achieved by ultimately relocating the two operations into another building where each group of sewers was integrated with a cutting operation. This, along with utilizing new technologies (CNC fabric cutters), allowed the necessary WIP reductions that reduced overall lead time.
For the assembly operations, the current state identified operations that could flow with one piece flow in cells that substantially reduced work-in-process and associated floor space and lead time. The main challenge in achieving this was dealing with varied products with varied cycle times. Some products were simple in nature and assembled very quickly while others were very complicated. Additionally, cycle times for arm, seat and back production varied that combined together at final assembly. Stanton developed an initial assembly cell that included frame assembly, foam-up, upholstery, final assembly and packaging. This was used to develop one-piece flow methods and incorporate as much point-of-use storage as possible. After a successful try-out period of several weeks, this cell was refined into a final version which was used as the model for the current 6 assembly cells used in production. While the cells are more efficient than previous batch and queue operations, they require constant labor balancing due to the varying cycle times. Stanton's goal is to make the cells self-balancing. Efforts will begin soon for wood component piece-part production, wood subassemblies, filling cushions and pillow, fabric swatch production and new product development.

**Results:**
* Reduced finished goods inventory by $250,000.
* Reduced manufacturing lead time from 7 days to 3 days.
* Reduced customer lead time from 2 to 4 weeks to 7 to 10 days.
* Freed up 10,000 square feet of floor space.
* Invested $300,000 in new equipment.

**Testimonial:**
"OMEP has been a tremendous help in getting Stanton International started on our Lean journey. We didn't know where to start. OMEP came in with grants to allow us an opportunity to look at Lean with a low entry cost. They provided training and guidance to develop our own programs and continue to this day to be our expert in mentoring us to further Lean development. We are beginning to see a cultural change about how we view our workplace and what can be done to improve our ability to compete in the marketplace. We're seeing improvements in quality, productivity, inventory reductions and warehouse space savings. It would have been difficult to impossible to have gotten to the place where we are without OMEP."

Walter Harris, COO/Senior VP